

AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/067,266

Atty Docket No.: Q63212

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (currently amended): An electrical insulating vapor grown carbon fiber ~~comprising a vapor grown carbon fiber~~ having a fiber diameter of 0.01 to 0.5 μm , a hollow part in the center of the fiber and a boron concentration formed from a mixture of a boron compound and a vapor grown carbon fiber, the mixture having a boron concentration of about 1 to about 30% by mass in terms of a boron element, wherein the surface thereof is partially or entirely coated with an electrical insulating material of an inorganic compound or composition and the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface.

Claim 2. (original): The electrical insulating vapor grown carbon fiber as described in Claim 1, wherein the electrical insulating material is boron nitride.

Claim 3. (original): The electrical insulating vapor grown carbon fiber as described in Claim 2, wherein the boron nitride is present in an amount of about 2% by mass or more based on the entire amount of vapor grown carbon fiber and has a Co value of 0.680 nm or less.

Claim 4. (canceled).

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AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/067,266

Atty Docket No.: Q63212

Claim 5. (original): The electrical insulating vapor grown carbon fiber as described in Claim 1, wherein the fiber has a specific resistivity of about $10^3 \Omega \cdot \text{cm}$ or more and a heat conductivity of about $150 \text{ Wm}^{-1} \text{K}^{-1}$ or more when compressed at a bulk density of 0.8 g/cm^3 .

Claim 6. (original): A method for producing an electrical insulating vapor grown carbon fiber, comprising mixing a boron compound with a vapor grown carbon fiber having a fiber diameter of 0.01 to $0.5 \mu\text{m}$ to form a mixture and heat-treating the mixture at $2,000^\circ\text{C}$ or more in the presence of a nitrogen compound.

Claim 7. (original): A method for producing an electrical insulating vapor grown carbon fiber coated with boron nitride, comprising mixing a boron compound with a vapor grown carbon fiber having a fiber diameter of 0.01 to $0.5 \mu\text{m}$ to form a mixture, compressing the mixture and heat-treating the compressed mixture at $2,000^\circ\text{C}$ or more in the presence of a nitrogen compound.

Claim 8. (original): The method for producing an electrical insulating vapor grown carbon fiber as described in Claim 6, wherein the nitrogen compound is nitrogen.

Claim 9. (original): The method for producing an electrical insulating vapor grown carbon fiber as described in Claim 6, wherein the boron compound is at least one member selected from the group consisting of elementary boron, boric acid, borate, boron oxide, B_4C and boron nitride.

Claim 10. (previously presented): The method for producing an electrical insulating vapor grown carbon fiber as described in Claim 6, wherein the mixture of the boron compound

AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/067,266

Atty Docket No.: Q63212

and the vapor grown carbon fiber has a boron concentration of about 1 to about 30% by mass in terms of the boron element, based on the entire mass of the vapor grown carbon fiber.

Claim 11. (currently amended): An electrical insulating composite material comprising a synthetic resin or synthetic rubber composition containing an electrical insulating vapor grown carbon fiber ~~comprising a vapor grown carbon fiber having a fiber diameter of 0.01 to 0.5 μm , wherein the surface thereof is partially or entirely coated with an electrical insulating material of an inorganic compound or composition and the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface.~~

Claim 12. (original): The electrical insulating composite material as described in Claim 11, wherein the electrical insulating material is boron nitride.

Claim 13. (original): The electrical insulating composite material as described in Claim 12, wherein the boron nitride is present in an amount of about 2% by mass or more based on an entire amount of vapor grown carbon fiber and has a Co value of 0.680 nm or less.

Claim 14. (previously presented): The electrical insulating composite material as described in Claim 12, wherein the amount of boron in a depth of 1 nm from the surface of vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown carbon fiber.

Claim 15. (original): The electrical insulating composite material as described in Claim 11, wherein the fiber has a specific resistivity of about $10^3 \Omega \cdot \text{cm}$ or more and a heat conductivity of about $150 \text{ Wm}^{-1} \text{K}^{-1}$ or more when compressed at a bulk density of 0.8 g/cm^3 .

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AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/067,266

Atty Docket No.: Q63212

Claim 16. (currently amended): A heat-releasing material comprising an electrical insulating vapor grown carbon fiber having a fiber diameter of 0.01 to 0.5 μm , wherein the surface thereof is partially or entirely coated with an electrical insulating material of an inorganic compound or composition and the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface.

Claim 17. (original): The heat-releasing material as described in Claim 16, wherein the electrical insulating material is boron nitride.

Claim 18. (original): The heat-releasing material as described in Claim 17, wherein the boron nitride is present in an amount of about 2% by mass or more based on an entire amount of vapor grown carbon fiber and the fiber has a Co value of 0.680 nm or less.

Claim 19. (canceled)

Claim 20. (original): The heat-releasing material as described in Claim 16, wherein the fiber has a specific resistivity of about $10^3 \Omega \cdot \text{cm}$ or more and a heat conductivity of about $150 \text{ Wm}^{-1} \text{K}^{-1}$ or more when compressed at a bulk density of 0.8 g/cm^3 .

Claim 21. (new): The method for producing an electrical insulating vapor grown carbon fiber as described in claim 6, wherein the amount of boron in a depth of 1 nm from the surface of the vapor grown carbon fiber is about 10% by mass or more, based on the entire mass of the vapor grown fiber having a depth of 1 nm from the surface.

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